



Plant Sciences UPDATE

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Winter Issue



IN THIS ISSUE

LEAD STORIES

- CSREES NRI Funded Rice Genome Sequencing Research Cited In Journals Nature and BMC Biology
- CSREES and the Department of Energy Sign Agreement to Advance Coordination of Plant and Microbial Genomics

FUNDING IMPACTS AND OPPORTUNITIES

- Applying for Grants at GRANTS.GOV

INVESTMENTS

- Genomics Research Project For Improving Crops
- Pennsylvania IPM Program Awards IPM Grants for Greenhouses and Grapes

IMPACTS

- Exotic/Invasive Pests and Diseases Research Program (EPDRP)
- CSREES NRI Student Research Awards Enables Students to Participate in International Symposium
- Small Plants Loom Large: WSU Researchers Find a Key to Plant
- Study of Functional Genomics in Rice is Funded by the NRI Plant Genome Program

OPPORTUNITIES

- Cooperative Conservation Partnership Initiative (CCPI)
- Conservation Innovation Grants (CIG)
- Grazing Lands Conservation Initiative (GLCI)
- Plant Biosecurity

CSREES PROGRAM HIGHLIGHTS

- Genetic Resource to Study Functional Genomics in Maize Supported by the NRI
- CSREES NRI RiceCAP Grant Sponsors 4 New Projects in 2005
- CSREES Funds the Interagency Maize Genome Sequencing Project
- CSREES Stakeholders' Workshop on Priorities for Research, Education and Extension in Plant and Pest Biology

UPCOMING AND RECENT MEETINGS

INSIDE THE BELTWAY

- President's FY 2007 Budget for CSREES
- APHIS Procedures for Hand Carrying Biological Organisms
- Congressional Briefing on Pesticides in the Nation's Streams and Ground Water

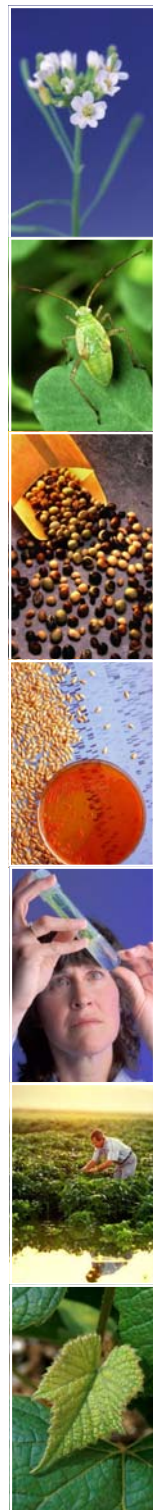
AGENCY PERSONNEL SPOTLIGHT

- Dawn Thilmany Joins PAS as Interim Program Leader for Organics
- Liang-Shiou Lin and John Sherwood to Oversee the NRI Plant Biosecurity Program

RESOURCES

- Plant Management Network Partners Program Grows to 50 Strong
- PMN Announces New Web-Based Manuscript Submission and Review System
- Proceedings of the National Soybean Rust Symposium Now Available
- New Look for the University of Maryland Home and Garden Information Center's Web Sites
- New Book Helps Farmers Work With Nature to Manage Insect Pests

PLANT SCIENCES STAFF DIRECTORY



Agriculture is a knowledge-based, global enterprise, sustained by the innovation of scientists and educators.

The mission of CSREES is to advance knowledge for agriculture, the environment, human health and well-being, and communities.

www.csrees.usda.gov

LEAD STORIES

CSREES NRI Funded Rice Genome Sequencing Research Cited In Journals Nature and BMC Biology



Researchers from the International Rice Genome Sequencing Project (IRGSP) completed a finished quality sequence of the rice genome that represents a highly accurate blueprint for all the rice chromosomes. Their analysis, published in the August issue of *Nature* (*Nature* 436, 793-800 (11 August 2005)), will be a vital resource to improve the nutritional quality and maximize productivity of rice, which is the most important food source for half the world's population. In addition researchers from the U.S. rice chromosomes 3, 11 and 12 consortiums published their completed genome sequence analysis in the August issue of *Genome Research* (*Genome Research* 15:1284-1291, 2005) and *BMC Biology* (*BioMed Central Biology* 2005, 3:20). On chromosome 3 they identified over 5900 genes that show a high degree of genome similarity with other cereal crops such as maize, sorghum, wheat and barley and provides a strong knowledge base for plant breeders to utilize for crop improvement efforts while highlights from chromosome 11 and 12 are rich in disease resistance genes and recent gene duplications. The research was jointly funded by CSREES National Research Initiative (NRI), National Science Foundation (NSF) and the U.S. Department of Energy (DOE).

Web access:

www.csrees.usda.gov/newsroom/releases/2005releases/rice_genome.html.

For more information: Ed Kaleikau,
ekaleikau@csrees.usda.gov

CSREES and the Department of Energy Sign Agreement to Advance Coordination of Plant and Microbial Genomics

Scientific discoveries in plant and microbial genomics will be greatly advanced by a new memorandum of understanding (MOU) between CSREES and the DOE's Office of Biological and Environmental Research (OBER). Both CSREES and OBER support research to improve the scientific understanding underlying bioenergy, biosecurity, and land-based ecosystems. This MOU will strengthen that relationship and could help speed the deployment of emerging technologies - such as improved methods of marker assisted selection, gene identification, sequence assembly, and database integration and accessibility. Under this MOU, CSREES and DOE will establish a framework to cooperate and coordinate agency-relevant plant and microbial genome sequencing and bioinformatics that can serve the needs of the broader scientific community and solve problems that are important to each agency mission. As the first project resulting from the MOU, the DOE Joint Genome Institute will tackle the sequencing of the soybean genome, the world's most valuable legume crop. Over 3.1 billion bushels of soybeans were grown in the U.S. on nearly 75 million acres in 2004, with an estimated annual value exceeding \$17 billion. The soybean sequencing project contributes to USDA's comprehensive energy strategy to help farmers and ranchers mitigate the impact of high energy costs while developing new avenues for clean energy generation and crop improvement.

Web access:

www.csrees.usda.gov/newsroom/news/csrees_news/06news/soybean_dna.html

For more information: Ed Kaleikau,
ekaleikau@csrees.usda.gov

FUNDING IMPACTS AND OPPORTUNITIES

Applying for Grants at GRANTS.GOV

CSREES information can be found at www.csrees.usda.gov/business/other_links/egov/csrees/egrants.html

Grants.gov is the site to find and apply for more than \$360 billion in competitive Federal grants across all 26 Federal Grant making agencies. Currently there are more than 2,050 active grant opportunities posted on the site spanning 20+ diverse grant categories ranging from Agriculture to Technology. Over 70 active electronic grant application packages are available on Grants.gov to apply today from Federal agencies, including the Departments of Agriculture, Commerce, Education, and Health and Human Services, the Environmental Protection Agency, the Social Security Administration, and the National Endowments for the Arts and Humanities. Through Grants.gov, the grant community has online access to grant application packages to find and meet the nation's most essential public needs, including an Education grant to reduce alcohol abuse, a Health and Human Services state planning grant, and a USDA scientific cooperation research program.

Grants.gov also provides the ability to download a grant application package and then view and complete it offline giving you the flexibility to complete grant applications when and where you want. It also enables you to easily route it through your organization for review, to complete various components, just like any other email attachment. When the application is complete and ready for submission, you can connect to the Internet and simply click the submit button.

Grants.gov resources on the web

- Grants.gov checklists for Organizations, Individuals, Institutions, etc. – www.grants.gov/RegistrationChecklist
- Other useful links, including foundation resources, funding resources, grants management resources, and more: www.grants.gov/RelatedLinks

INVESTMENTS

Genomics Research Project For Improving Crops

CSREES National Research Initiative (NRI) awarded a grant totaling \$62,000 for genomics research to Dr. Umesh Reddy, assistant professor of biology and research scientist; and Dr. Padma Nimmakayala, research scientist, at West Virginia State University who are the principle investigators for the grant.

The Cotton Growers Federation and Cotton Incorporated gave Drs. Reddy and Nimmakayala a five-year contract to continue cotton genomics research and complete a genetic map. The scientists have identified 500 cotton genome specific DNA markers. The expected impact is that by using this genetic map, breeders can precisely select improved varieties. The genetic information will be sent to the National Center for Biotechnology Information GenBank in Maryland as well as to the Cotton Microsatellite Database.

Their projects are addressed at the West Virginia State University Agricultural and Environmental Research Station (AERS) under Dr. Mark Chatfield, associate director and scientist.

For more information: Department of Biology at WVSU (304) 766-3102; Dr. Mark Chatfield, director of AERS at (304) 766-3110 or chafield@wvstateu.edu; Dr. Reddy at ureddy@wvstateu.edu or (304) 766-3066; Dr. Padma Nimmakayala at padma@wvstateu.edu or (304) 766-3258.

Pennsylvania IPM Program Awards IPM Grants for Greenhouses and Grapes

For the past four years, Penn State's Extension IPM Program has funded projects that facilitate the adoption of environmentally-sound pest management practices by Pennsylvania farmers, rural and urban pest managers, and homeowners/renters. The program is supported through CSREES formula funds earmarked for IPM program development. The Pennsylvania IPM program (PAIPM) is a collaboration between the Pennsylvania State University and the Pennsylvania Department of Agriculture aimed at promoting integrated pest management in both agricultural and nonagricultural situations.

The PAIPM recently awarded three grants to Penn State Extension Educators under its IPM mini-grants program. The IPM mini-grants program annually selects a number of proposed projects through a competitive process that develop and promote practical, locally-based IPM programs.

The recipients for 2006 are:

Greenhouse IPM for Old Order Plain People in Berks County - Project Leaders Mena Hautau, Extension Educator, Penn State Cooperative Extension, Berks County; Warren Goll, Extension Educator, Penn State Cooperative Extension, Delaware County; and Project Cooperator Cathy Thomas, PA IPM Program. The goal of this project is to take the successful Greenhouse IPM program developed for Lancaster County plain people and expand it into Berks County. Growers in the area will learn about IPM and biological control in a greenhouse.

Integration of Alternative and Conventional Strategies for Management of Grape Berry Moth in Severe Risk Vineyards - Project Leaders Andy Muza, Penn State Cooperative Extension, Erie County; Time Weigle, Area IPM Senior Extension Educator, Corell Vineyard Laboratory; and Cooperators John Mason, Mason Farms, Bill and Ted Byham, Byham Farms. This is the continuation of a successful project that was originally started during the 2004 growing season. Its goal is to establish a new Grape Berry Moth management program for severe and high risk vineyards, and adoption of alternative strategies resulting in a reduction in the use of conventional insecticides in the Lake Erie Grape Belt.

Management of Soil-Borne Organisms and Pathogens Causing Yield Reduction of Greenhouse and High Tunnel Tomatoes - Project Leader Jeffrey Mizer, Penn State Cooperative Extension. The goal of the project will be to determine if growing cover crops and using a bio-fumigant in greenhouse and high tunnel tomato operations will result in significant decreases in soil diseases and insect pests, thus increasing the income of small farmers.

For more information: contact the program at (814) 865-2839

Web access: paipm.cas.psu.edu

IMPACTS

Exotic/Invasive Pests and Diseases Research Program (EPDRP)

The University of California, Agriculture and Natural Resources Division recently held its fall workshop on the Exotic/Invasive Pests and Diseases Research Program at the University of California, Davis. The workshop included 30 presentations and 32 poster presentations on research projects that are obtaining an understanding of the basic and applied biology of exotic/invasive pests and diseases that presently impact California or are likely to do so in the future. Projects funded under this program cover a wide range of taxa including invasive insects, weeds, pathogens, and vertebrates.

The University of California Riverside Center for Invasive Species Research and the UC Statewide IPM Program fund the EPDRP with a special grant from CSREES. Each year, the EPDRP solicits new proposals for developing and promoting basic and applied research programs linked to extension, that address exotic pests and diseases found in agriculture, urban, and natural environments in California. This year's request for new proposals will be posted on the EPDRP website and will have an April 2006 deadline.

The Exotic/Invasive Pests and Diseases Research Program solicits proposals from scientists affiliated with public research institutions, both within and outside of California. Funding is not restricted to University of California investigators, although projects are strongly encouraged to include at least one UC Division of Agriculture and Natural Resources academic employee as an investigator, to ensure relevance to exotic pests and diseases/invasive species of particular importance to California, and linkage to the Agriculture Experiment Station and Cooperative Extension system. Investigators participating in the EPDRP are from the states of AL, CA, FL, ND, and NM and TX.

For further information on this research program, visit the EPDRP website at www.ipm.ucdavis.edu/EXOTIC/ or contact Dr. Rick Roush, Director, UC Statewide IPM Program at rtroush@ucdavis.edu; (530) 752-8350 or Dr. Herb Bolton, National Program Leader, at CSREES at hbolton@csrees.usda.gov; (202) 401-4201.

CSREES NRI Student Research Awards Enables Students to Participate in International Symposium

To promote advances in rice research made in the US research community, to provide an opportunity to learn about the latest developments in structural, functional and evolutionary genomics and genetics research, and to facilitate future international collaborations in rice research, the CSREES supported the travel of two graduate students and two post doctoral fellows to attend the *5th International Rice Genetics Symposium and the 3rd International Rice Functional Genomics Symposium (RG5-IRFG3)*, (www.irri.org/rg5/), November 19-23, 2005 in Manila, Philippines. The students, Anjali S. Iyer-Pascuzzi (Cornell University) and Myron Bruce (Colorado State University), and postdocs Kristi Mather (North Carolina State University) and Jeremy Edwards (University of Arizona), were selected for the travel support from a competition based on research abstracts and how the envisioned attendance at the meeting would further their current and future in rice research. The *RG5-IRFG3* meeting was the largest gathering in the history of rice genetics/functional

genomics research, and was attended by approximately 720 participants from 43 countries. There were 60 US participants, and US-supported research was featured prominently in scientific sessions, with eight (of 26) plenary speakers and nine (of 55) concurrent session speakers being from the US. CSREES also provided travel assistance for six plenary and concurrent session speakers. This meeting was clearly an exciting venue for rice biologists and geneticists!

Following the meeting, the International Rice Research Institute hosted meeting attendees, including the student and postdoctoral travel awardees, for a day of field and laboratory tours. This was the first opportunity for many rice biologists to see large-scale methods to screen for biotic or abiotic stresses (such as submergence tolerance, etc.) as well as to experience the breadth of phenotypic diversity found in the rice germplasm collection as well as the deletion mutant collection.

For more information: Ed Kaleikau, ekaleikau@csrees.usda.gov

Small Plants Loom Large: WSU Researchers Find a Key to Plant Growth

Lead investigator B.W. (Joe) Poovaiah and research associate Liquan Du have discovered a way to control the ultimate size of a plant. By altering a specific gene, they were able to change the size of the plant that grew from an experimental seed. Different alterations led to different size plants, showing that plants might be "size-engineered" to fit the needs of growers. Their findings are reported in the journal *Nature* and WSU has applied for a patent on the process.

Poovaiah said size-engineered plants could be a potent tool against worldwide hunger.

"Dwarf plants use less water and are more resistant to wind and rain damage than normal-size plants," he said. "They devote a greater proportion of their energy to producing seeds or fruit rather than stems and leaves."

He compares his findings to the development, in the 1960s, of semi-dwarf wheat varieties that boosted Third World wheat production in what became known as the "Green Revolution."

Poovaiah and Du worked primarily with *Arabidopsis*, a member of the mustard family, but have found similar genes with the same function in every plant they have examined, including important crop plants such as peas and rice. In addition to large-scale agriculture, other potential uses for dwarf plants include ornamental horticulture, home gardens and even the greening of space. Some of Poovaiah's earlier funding came from NASA, to develop plants that will grow well but small within the confines of a spacecraft, as a way to provide both oxygen and fresh food during long missions.

The gene described in the *Nature* article directs the plant to make a protein, dubbed DWF1 (for "Dwarf 1"), which is involved in the production of a plant growth hormone. Poovaiah and Du showed that the normal form of DWF1 is needed, along with calcium and a calcium-binding protein called calmodulin, for a plant to attain its full normal size. When they modified the gene in one way, the plant topped out at less than half of normal height. Greater modification stunted the plant even further. Eliminating the gene (and hence the protein) resulted in a ground-hugging rosette of leaves with very little vertical growth.

Poovaiah is a professor in WSU's Department of Horticulture and Landscape Architecture and the Center for Integrated Biotechnology. Poovaiah's discovery is the result of about 30 years of concerted effort at WSU in his laboratory. Over that period of time he has continuously received funding from the Agricultural Research Center for his salary and some operating funds as part of our partnership with the federal government under the Hatch Act. He has routinely received significant funding from the National Science Foundation, NASA, and the CSREES National Research Initiative (NRI). He has also received funds from the Washington State Potato Commission and a variety of other sources. More information and photographs about Poovaiah's work can be found at his web site, molecularplants.wsu.edu/calcium/.

For more information: B.W. Poovaiah, 509-335-2487, poovaiah@wsu.edu

Study of Functional Genomics in Rice is Funded by the NRI Plant Genome Program

The rice genome sequence has disclosed the existence and structure of more than 30,000 rice genes. Experimental evidence for the function is available only for a few genes. Researchers can learn the function of the remainders through a process called reverse genetics, in which each sequence-defined gene is mutated and the connected phenotype is tested. In the general strategy for reverse genetics called "TILLING" (for Targeting Induced Local Lesions IN Genomes) traditional chemical mutagenesis is followed by high-throughput screening to identify point mutations. A consortium of researchers at the University of Washington, USDA and the International Rice Research Institute are applying TILLING to rice, focusing on the japonica variety cultivated in the United States, but also the indica variety preponderately used in the developing countries. To develop TILLING in rice, populations of chemically mutagenized rice will be produced and

tested. The suitability of this material will be demonstrated by TILLING a number of genes involved in stress responses, that is identifying the corresponding mutants in the populations. They have produced EMS mutagenized populations for TILLING of japonica rice (cv. Nipponbare) and indica rice (cv. IR64), identify mutants in a set of stress tolerance candidate genes, provide TILLING services and mutant stocks to the research community, depositing the tilled lines at the USDA Dale Bumpers rice stock center in Stuttgart Arkansas and the data in the Gramene database, and provide training in the form of workshops to scientists interested in applying TILLING to a crop plant.

Web access: tilling.fhcrc.org:9366/

For more information: Ed Kaleikau, ekaleikau@csrees.usda.gov

OPPORTUNITIES

NRCS Funding Opportunity: Cooperative Conservation Partnership Initiative (CCPI)

Up to \$4 million is available nationwide for the Cooperative Conservation Partnership Initiative (CCPI). This competition fosters the development of conservation partnerships to focus technical and financial resources on conservation priorities in watersheds and airsheds of special significance. The deadline to submit proposals is **March 7, 2006**.

For more information: Kari Cohen, CIG Program Manager, kari.cohen@wdc.usda.gov, 202-720-2335

Web access: www.nrcs.usda.gov/programs/ccpi/

NRCS Funding Opportunity: Conservation Innovation Grants (CIG)

NRCS recently announced two new funding opportunities. Up to \$20 million are available for Conservation Innovation Grants (CIG). This nationwide competition promotes the development and adoption of innovative conservation technologies and approaches in agriculture. Up to \$5 million in CIG will be available for addressing specific natural resource concerns in the Chesapeake Bay watershed. The deadline to submit proposals is **March 20, 2006**.

For more information: Kari Cohen, CIG Program Manager, kari.cohen@wdc.usda.gov, 202-720-2335

Web access: www.nrcs.usda.gov/programs/cig/

NRCS Funding Opportunity: Grazing Lands Conservation Initiative (GLCI)

Announcement of Funding for the Management and Control of Invasive Species Affecting Grazing Land Applications for grants (\$50,000 to \$500,000) to manage or control the spread of invasive species affecting grazing land are being sought. Up to \$4,146,120 is available for projects. Approximately 40 grants are expected to be awarded. A 1:1 match is required. Proposals that address invasive species concerns on western range (grazing) lands will be given a priority. Proposals are due into NRCS Headquarters by 5:00 p.m. on **April 3, 2006**.

For more information: Thomas Sommer, thomas.sommer@wdc.usda.gov, 202-205-4211

Plant Biosecurity

CSREES requests applications for the Plant Biosecurity Program. In FY 2006, CSREES anticipates that approximately \$4 million will be available for support of this program. Completed applications must be received by close of business on **June 15, 2006**.

For more information: Liang-Shiou Lin at LLIN@csrees.usda.gov

Web access: www.csrees.usda.gov/fo/plantbiosecuritynri.html

CSREES PROGRAM HIGHLIGHTS

Genetic Resource to Study Functional Genomics in Maize Supported by the NRI

One of the major challenges with the advent of genomics has been assigning functions to all the genes so that they can be better understood and more usefully manipulated. So-called "reverse genetics", or finding mutant varieties that have a change in a specific DNA sequence and then determining the effects of that change, has been an extremely powerful tool to meet this challenge. Targeting Induced Limited Lesions IN Genomes (TILLING) was developed to allow reverse genetics using changes to single base pairs of DNA. The advantage to this method is that mutations with a wide range of effects can be obtained for any given gene, allowing the study of interactions between genes, subtle effects of partially functioning genes and even gain-of-new-function alleles. In addition, an allelic series of several mutations in a

given target is often identified, providing confirmation. Any lines in which mutations are identified in the user's desired target sequence are then distributed free of charge, and the information deposited in a public database. With funds from CSREES CP NRI Plant Genome, Bioinformatics and Genetic Resources Program, researchers at Purdue University and Iowa St. University have mutagenized and tested two large populations of maize for the Maize TILLING Project, one in the inbred W22 and the other in inbred B73. B73 is the inbred that has been selected for sequencing by the interagency NSF/USDA/DOE maize genome project. The project has prompted other labs in the maize community to contribute their mutagenized populations in these two inbreds and to allow researchers to sample the necessary tissues from their stocks as well. Thus far, >50000 M1 mutant seed have been created for each inbred, >10000 M2 ears have been created from a portion of each M1 population and ~2000 of these M2 have been advanced to an M3 generation that can be screened and distributed to the community for further study.

Web access: genome.purdue.edu/maizetilling/

For more information: Ed Kaleikau, ekaleikau@csrees.usda.gov

CSREES NRI RiceCAP Grant Sponsors 4 New Projects in 2005

The CSREES NRI Rice Coordinated Agricultural Project (RiceCAP) (www.uark.edu/ua/ricecap/) has selected 4 new proposals for funding in 2005 to study sheath blight disease, caused by *Rhizoctonia solani* (RS), the most important rice disease in the U.S. impacting most of the southern rice production area. It can cause up to 50% yield loss and lower milling quality. A goal of RiceCAP is to create a bridge between the basic research of rice genomics and the applied research of rice breeding for improved U.S. varieties. The 4 projects are as follows: (1) Differential response of rice varieties to RS toxin, a pathogenicity factor in sheath blight disease of rice; (2) Workshop on the tools of rice genomic research for high school teachers; (3) A molecular marker survey to determine the presence of non-parental alleles in a Sheath Blight mapping population of rice and; (4) Development of rice mapping populations using sheath blight resistant wild species.

For more information: Ed Kaleikau, ekaleikau@csrees.usda.gov

CSREES Funds the Interagency Maize Genome Sequencing Project

CSREES in partnership with the National Science Foundation, and the U.S. Department of Energy are supporting large-scale sequencing of the corn genome. Previous funding from the USDA, NSF and DOE has supported development of maize genome sequence resources, including physical and genetic maps, expressed sequence tags, sequences derived from gene-enriched genomic libraries, and a community genome database. The Interagency Maize Genome Sequencing Project will build on those resources to develop high quality sequence resource of the maize genome to accelerate molecular and genetic research into the function and regulation of cereal genes, advancing agriculture and energy research and development, plant biotechnology and knowledge of basic plant physiology and diversity.

Web access: www.csrees.usda.gov/newsroom/releases/2005releases/maize_genome.html.

For more information: Ed Kaleikau, ekaleikau@csrees.usda.gov

CSREES Stakeholders' Workshop on Priorities for Research, Education and Extension in Plant and Pest Biology

A stakeholders' workshop for Plant and Pest Biology was held on November 16, 2005 in Alexandria, VA. The workshop, which was sponsored by CSREES, was organized by the American Society for Plant Biology (ASPB). Approximately 50 attendees included scientific societies, groups representing growers and producers, and federal program managers. The scientific societies that made presentations included the American Phytopathological Society, the American Society for Microbiology, the Tri-Societies (Crop, Agronomy and Soil Science), the American Society for Horticultural Science, the Weed Science Society, ASPB, and others. Representatives for growers and producers of corn, apples, sorghum, wheat, cotton, almonds, potatoes, and other plants of economic importance also made presentations. The agenda included a question and answer session with a panel of federal program managers including CSREES, ARS, NSF, and DOE. The stakeholders emphasized the importance of multi-disciplinary, long term research. They were particularly interested in translational research that will solve "real world" problems and enhance our economic competitiveness in world markets. Research on biomass for energy and on resistance of plants to drought and disease and development of a project to sequence the wheat genome were also of special interest. A publication is being prepared in collaboration with the ASPB; it will be available both in print form and on the web sites of CSREES and ASPB this spring.

For more information: Gail McLean, gmclean@csrees.usda.gov

UPCOMING AND RECENT MEETINGS

2006

- International Forum on Assessing Sustainability in Agriculture, Bern, Switzerland, **March** 16-17, 2006. www.iisd.org/measure/community/infasa/
- Smart Energy Management in Agriculture, North Coast, CA, **March** 23, 2006. www.eco-farm.org/RESA/resahome.html
- Fifth National IPM Symposium "Delivering on a Promise", St. Louis, MO, **April** 4-6, 2006. www.ipmcenters.org/IPMSymposiumV/
- 3rd International Conference on Legume Genomics and Genetics: Genes to Crops, Brisbane, Australia, **April** 9-13, 2006. www.iclgg3.org/
- Functional Foods: The New Medicine Conference, Huntsville, AL, **April** 20, 2006. webspaces.aamu.edu/ag/sps/FunctionalFoodsConference/FunctionalFoods.html
- 28th Symposium on Biotechnology for Fuels and Chemicals, Nashville, TN, **April** 30-**May** 3, 2006. www.simhq.org/html/meetings.html
- The 1st IFOAM Conference on Organic Wild Production, Bosnia and Herzegovina, **May** 3-4, 2006. www.ifoam.org/events/ifoam_conferences/IFOAM_Wild_Conference.html
- National Extension Technology Conference 2006, Enhancing Teamwork with Technology, Gainesville, FL, **May** 8-11, 2006. conference.ifas.ufl.edu/NETC2006/
- 5th Natural Resource Extension Professionals Conference, Park City, UT, **May** 14-17, 2006. www.anrep2006.org/Home2.cfm?homeextra=yes
- 14th International Conference on Aquatic Invasive Species, Key Biscayne, FL, **May** 14 – 19, 2006. www.icaeis.org/
- 8th Annual Plant Sciences Institute Symposia: Plant Receptor Signaling, Ames, Iowa, **June** 22-25, 2006. www.plantsciences.iastate.edu/symposia/
- OFA - Association of Floriculture Professionals 2005 Short Course & Trade Show, Columbus, OH, **July** 8-12, 2006. www.ofa.org
- 90th Annual Meeting of the Potato Association of America and VI International Solanaceae Congress, Madison, WI, **July** 23 - 27, 2006. www.hort.wisc.edu/PAA-Solanaceae/
- National 4-H Technology Leadership Conference: Integrating Science Inquiry & Technology Skills into 4-H, Lincoln, NE, **July** 24-27, 2006. 4hntc.4-h.org/
- ASHS Annual Conference, New Orleans, LA, **July** 27-30, 2006. www.ashs.org/conferences.html
- American Society of Plant Biologists, Plant Biology 2006 Conference, Boston, MA, **August** 5-9, 2006. www.aspb.org/meetings/pb-2006/pb06flyer.pdf
- International Conference on The Future of Agriculture: Science, Stewardship, and Sustainability, Sacramento, CA, **August** 7-9, 2006. www.dce.ksu.edu/dce/conf/ag&environment/
- 27th International Horticultural Congress. Seoul, South Korea, **August** 13-19, 2006. www.ihc2006.org
- North Central SARE's National Conference on Sustainable Agriculture, Oconomowoc, WI, **August** 15-17, 2006. www.sare.org/hcrsare/2006_national_conference.htm
- Natural Products Expo East, Baltimore, MD, **October** 4-7, 2006. www.expoeast.com/
- 2006 ASLA Annual Meeting & EXPO, Minneapolis, MN, **October** 7-10, 2006. www.asla.org/meetings/am2006/minneapolis.html
- ASA-CSSA-SSSA International Annual Meeting, Indianapolis, IN, **November** 12-16, 2006. www.asa-cssa-sssa.org/meetings/acs/future.html

2007

- 2007 ASHS Annual Conference, Scottsdale, AZ, **July** 16-19, 2007.
- International Society for Arboriculture, Honolulu, HI, **July** 28 - **August** 1, 2007. www.ashs.org/conferences.html
- 2007 ASLA Annual Meeting & EXPO, San Francisco, CA, **October** 6 - 9, 2007. www.asla.org/nonmembers/meetings.html
- ASA-CSSA-SSSA International Annual Meeting, New Orleans, LA, **November** 4-8, 2007. www.asa-cssa-sssa.org/meetings/acs/future.html

INSIDE THE BELTWAY

President's FY 2007 Budget for CSREES

On Monday, February 6, 2006, President George W. Bush forwarded the Fiscal Year (FY) 2007 Budget to Congress. The FY 2007 Budget for the Cooperative State Research, Education, and Extension Service (CSREES) includes discretionary funding totaling \$1,038,057,000. This represents a decrease of \$161,264,000 or approximately 13.44 percent below the FY 2006 Appropriations Act post-rescission amount of \$1,199,321,000. However, this is an increase of \$5,358,000 or approximately 0.52 percent above the FY 2006 President's Budget amount of \$1,032,699,000. The FY 2007 Budget includes \$11,880,000 for the Native American Endowment Fund and an estimated \$3,100,000 for interest earned on the Endowment. Additional mandatory funding of \$5,000,000 for the Community Food Projects grant program, and \$3,000,000 for the Organic Research and Extension Initiative is included in the FY 2007 Budget.

The FY 2007 Budget supports the Administration's commitment to competitive programs and to the streamlining of program delivery and responds to stakeholder input. In a time of limited resources this is accomplished by: a) increasing funding for the National Research Initiative (NRI), b) maintaining funding, but restructuring the allocation of the Hatch Act and McIntire-Stennis Cooperative Forestry programs by redirecting a portion of the formula funds to nationally, competitively awarded multi-state/multi-institutional projects while retaining a portion to be awarded on the formula basis, c) eliminating the Animal Health and Disease, Section 1433 Research Program, and d) transferring programs authorized by Section 406 of the Agricultural Research, Extension, and Education Reform Act of 1998 to the NRI.

The budget proposes funding of \$247,500,000 for the NRI to support: a) increases in genomics, emerging issues in food and agriculture biosecurity, ecology and economics of biological invasions, and plant biotechnology and water security; b) water quality, food safety, pest related, methyl bromide transition and organic transition programs formerly funded under Integrated Activities; and c) ongoing research activities under the program. This is an increase of \$66,330,000

(including \$42.3 million for the 406 programs) over the FY 2006 Appropriations Act post-rescission amount.

The budget proposal includes \$2,970,000 for the New Technologies for Ag Extension Program to support systems that will make available research-based education offered by the eXtension network. Increases are proposed for the Food and Agriculture Defense Initiative, the new Higher Education Agrosecurity Program to expand current efforts that address agricultural security issues, and the Asian Soybean Rust program. Increases also are proposed for the 1890 research and extension programs, Graduate Fellowship Program, Expanded Food and Nutrition Education Program, and the Outreach and Technical Assistance for Socially Disadvantaged Farmers and Ranchers grants program under Section 2501.

The FY 2007 Budget includes funding to continue current program activities for most of the other CSREES programs and in some cases proposes funding for programs at approximately 1 percent below FY 2006 President's Budget level, reflecting the Congressional 2006 rescission enacted at the end of last year. Earmarked Special Research Grants, Extension and Research Federal Administration projects and grants, and several specific, targeted programs are not proposed for funding in FY 2007. The FY 2007 Budget proposes changes in the general provisions including increasing the amount provided for the NRI that may be used for competitive integrated activities from a maximum of 22 percent to a maximum of 30 percent. Also proposed is the elimination of the cap on indirect costs for competitively awarded grants. This elimination allows full indirect cost recovery under competitive awards.

The CSREES Budget homepage is being updated and information will be available as soon as possible. The homepage address is www.csrees.usda.gov – click on Budget Information under quick links for the link to the FY 2007 President's Budget Proposal. Information on the USDA FY 2007 Budget, including the FY 2007 Budget Summary Book, will be available by going to www.usda.gov, clicking on About USDA, and then clicking on budget information.

APHIS Procedures for Hand Carrying Biological Organisms

On December 15, 2005, the USDA Animal and Plant Health Inspection Service-Plant Protection and Quarantine (APHIS-PPQ) rescinded the prohibition on hand-carrying biological organisms and other germplasm, the bonded carrier requirement, and the requirement for inspection at the APHIS-PPQ inspection facility in Beltsville, MD.

Current permit holders must request an amended permit from APHIS-PPQ if they wish to hand-carry biological control agents (or other organisms) from their place of origin to any port of entry into the U.S., and then handcarry the organisms to any APHIS-approved quarantine facility within the U.S. According to Michael Firko (Director of Permits, Registrations, Imports and Manuals, APHIS-PPQ Plant Health Programs, Riverdale, MD), APHIS-PPQ will amend existing permits that specify "No hand carry," after proper arrangements are made with U.S. Department of Homeland Security-Customs and Border Protection (CPB) port staff (to verify the hand-carrier is listed on the permit) and with the responsible person at the approved quarantine facility indicated on the permit (quarantine officer, biosafety officer, etc.), to verify proper delivery and content. For this process to work smoothly, the traveler will need a permit from APHIS-PPQ that specifically authorizes hand-carry. The APHIS-PPQ permit unit will work with other Federal Agencies such as CPB to ensure smooth movement through the port of entry. APHIS has indicated that the Agency is close to a public release of "ePermits," their new web-based permitting system. For new permits issued under ePermits, hand-carry authorizations will be approved according to arrangements indicated above.

Permittees interested in hand-carrying should contact PPQ Permits, Registrations, Imports, and Manuals at their general office number (301-734-8646) or by e-mail (Pest.Permits@aphis.usda.gov) for more information. Specific questions on biological control permitting should be addressed to Bob Flanders (301 -734-5930), Michael Firko (301 -734-8760), Joe Vorgetts (the APHIS-PPQ Entomologist who issues most biological control permits, 301 -734-5405) or Vanessa Oakley (the APHIS-PPQ Compliance Officer; 301 -734-6343).

Web access: www.aphis.usda.gov

CSREES contact: Dr. Robert M. Nowierski, 202- 401-4900, Rnowierski@csrees.usda.gov

ARS contact: Dr. Ernest S. Delfosse, 301-504-6470, esd@ars.usda.gov

Congressional Briefing on Pesticides in the Nation's Streams and Ground Water

On Friday, March 3, 2006, a congressional briefing will be held to discuss Pesticides in the Nation's Streams and Ground Water, it will take place from 9:30 to 11:30 a.m., at the 2318 Rayburn House Office Building. This briefing is cosponsored by the Water Environment Federation and the Environmental and Energy Institute in cooperation with the U.S. Geological Survey. It will feature speakers from USGS and EPA. The U.S. Geological Survey's National Water-Quality Assessment Program (NAWQA) will release at this briefing its decadal, nationwide assessment on pesticide occurrence and concentrations in streams and ground water. The report will be available for briefing attendees.

The USGS assessment provides the most comprehensive national-scale analysis to date of pesticide occurrence, distribution and sources, and potential for effects on humans, aquatic life, and wildlife. Among the major findings are that pesticides are frequently present in streams and ground water, were seldom found at concentrations likely to affect humans, but were found in many streams at concentrations that may have effects on aquatic life or fish-eating wildlife.

The assessment also begins to examine two important topics with implications for the future—prediction of pesticides in unmonitored areas and long-term trends. USGS findings can be used to help guide and inform state and national regulations and policies for water-quality protection, such as those currently being deliberated in the 2007 Farm Bill. For example, the science-based insights can help decision makers better anticipate the types of pesticides most likely to affect water quality in urban and agricultural areas, and improve investments in water-quality monitoring and management across the Nation's diverse environmental and pesticide use patterns.

Briefing speakers will include: Robert Hirsch, USGS Associate Director for Water, will describe elements of the NAWQA design and significance of NAWQA's studies, providing a context for the pesticide findings; Bob Gilliom, NAWQA Pesticide Synthesis Team Leader, will present key findings and implications; and Jim Jones, Director, Office of Pesticides of the U.S. Environmental Protection Agency (EPA) will present implications of the findings and collaborative efforts by EPA and USGS to enhance the science base for EPA policy decisions.

The briefing is free and open to the public. No registration is required. The USGS Circular and supporting materials will be available on the web (<http://water.usgs.gov/nawqa>, under "What's New") on March 3, 2006. The USGS Circular will be available in print in late March/early April. If you would like a copy of the report, please contact Pixie Hamilton (pahamilt@usgs.gov; (804)-261-2602). **For more information:** Pat Sinicropi at 703-684-2416, psinicropi@wef.org or Donna Myers at 703-648-5012, dnmyers@usgs.gov

AGENCY PERSONNEL SPOTLIGHT

Dawn Thilmany Joins PAS as Program Leader for Organics

Dawn Thilmany joins the CSREES Plant and Animal Systems Unit in a shared faculty position to provide program leadership for the agency's organic program as Interim Program Leader for Organics during 2006. Dawn is an agricultural economist from Colorado State University who specializes in small and alternative agribusiness management issues, rural economic development and consumer marketing. She received her BS in Public Service and Administration in Agriculture and International Agriculture from Iowa State University, and her MS and PhD from the University of California-Davis in Agricultural Economics. She is currently an Associate Professor of Ag and Resource Economics at Colorado State with a three-way appointment in teaching, extension and research. For spring 2006, she will be a shared faculty, on-site in DC for about the middle two weeks of each month, and will then join USDA CSREES as an IPA in June. She has a husband, David and daughter, Elizabeth, who will join her in DC at that time. She may be reached at dthilmany@csrees.usda.gov or 202-401-4879.

Liang-Shiou Lin and John Sherwood to Oversee the NRI Plant Biosecurity Program

On October 1, 2005 (FY 2006), Liang-Shiou Lin and John Sherwood of the Competitive Programs unit assumed the program leadership for the NRI Plant Biosecurity Program (program code 20.2), for which the RFA was recently released (www.csrees.usda.gov/fo/plantbiosecuritynri.html). This program was previously managed by Kitty Cardwell of Plant and Animal Systems and Ed Kaleikau of Competitive Programs. Liang-Shiou Lin currently has responsibilities for two other NRI programs (program 52.2 Genetic Processes and Mechanisms of Agricultural Plants, and program 53.0 Developmental Processes of Agricultural Plants). John Sherwood is a half-time IPA from the University of Georgia where he is the head of the Plant Pathology Department. He also represents the CSREES on the interagency Microbial Observatory Program (a joint effort between CSREES and the National Science Foundation). Liang-Shiou Lin can be reached at LLIN@csrees.usda.gov and John Sherwood at jsherwood@csrees.usda.gov.

RESOURCES

Plant Management Network Partners Program Grows to 50 Strong

The Plant Management Network (PMN) www.plantmanagementnetwork.org/ is pleased to announce that its Partners Program has now grown to include 50 the most highly respected organizations in agriculture. PMN's industry, university, and nonprofit partners provide science-based solutions to agricultural practitioners worldwide through support of a collaborative not-for-profit collection of online resources. Information on PMN's Partners Program www.plantmanagementnetwork.org/partners/ is available online. For additional details, email partners@plantmanagementnetwork.org.

PMN Announces New Web-Based Manuscript Submission and Review System

PMN www.plantmanagementnetwork.org/ is happy to announce its new web-based service for authors, editors, and reviewers. Beginning in early January 2006, all PMN Journals (Applied Turfgrass Science, www.plantmanagementnetwork.org/ats/; Crop Management www.plantmanagementnetwork.org/cm/; Forage and Grazinglands www.plantmanagementnetwork.org/fg/, and Plant Health Progress www.plantmanagementnetwork.org/php/) will convert from their current email submission process to an online submission system called Manuscript Central. The new system will make submission of new manuscripts quicker and easier, allow authors to track their manuscripts through the peer-review process, decrease the time needed for review, and facilitate record keeping and statistical reporting.

Proceedings of the National Soybean Rust Symposium Now Available

The Proceedings of the National Soybean Rust Symposium is now online www.plantmanagementnetwork.org/infocenter/topic/soybeanrust/symposium/. Published by the Plant Management Network (PMN), it is publicly accessible through the PMN Soybean Rust Information Center www.plantmanagementnetwork.org/infocenter/topic/soybeanrust/. The publication contains the symposium's program, 43 presentations, 53 posters, and the results of three breakout sessions conducted at the three-day event.

Presented by The American Phytopathological Society www.apsnet.org/, eighteen sponsors, and ten partners, the symposium was held November 14-16, 2005, in Nashville, TN. An audience of more than 350 attendees participated in the event that was organized by symposium coordinator Gary Bergstrom, Cornell University; a program planning committee chaired by Anne Dorrance, Ohio State University; and an advisory board of representatives of several related organizations. The symposium was designed to 1) provide the best research and latest information on soybean rust acquired during North America's first crop season with the disease and 2) to identify national priorities for strategic response and research planning on soybean rust.

According to Bergstrom, "The symposium successfully met its purpose. We have a wealth of information that we've compiled and are making available to all the key stakeholders dealing with soybean rust. Attendees were also able to walk away from the meeting with the latest information available on the disease. We anticipate the findings will play a significant role in plans for 2006."

New Look for the University of Maryland Home and Garden Information Center's Web Sites

The University of Maryland Home and Garden Information Center's websites (www.hgic.umd.edu) have a new look for 2006! They are more user friendly with an updated appearance and improved functionality.

Sections on the main HGIC site include: Timely Tips, Publications, Master Gardener, Links, Invasive Species, Send a Question, What's New, Send a Question and more! We have expanded our "Invasives" section to include Sudden Oak Death,



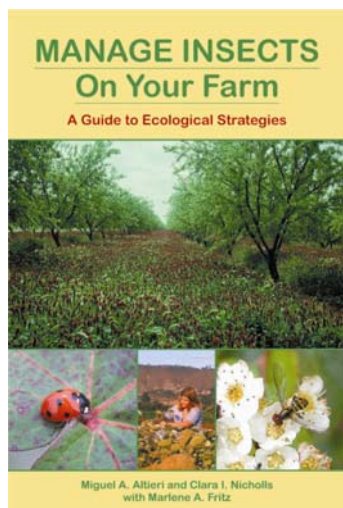
Soybean rust, Brown Marmorated Stink Bug, and other new emerging issues.

Our Plant Diagnostic site (plantdiagnostics.umd.edu/) has been completely redesigned. The new site is database driven with dynamic web pages and a custom search engine which will make it easier for you to find information. Access the diagnostics site via the Plant Diagnostic link on our homepage or through the url.

For more information:
Mary Kay Malinoski
mkmal@umd.edu



New Book Helps Farmers Work With Nature to Manage Insect Pests



Nationwide, farmers are in need of insect pest management strategies that are effective, affordable and environmentally sound. To help meet that need, the Sustainable Agriculture Network (SAN) announces the release of *Manage Insects on Your Farm: A Guide to Ecological Strategies*, a primer designed to help farmers improve their farms' natural defenses against insect pests.

While every farming system is unique, the principles of ecological pest management apply universally. *Manage Insects on Your Farm* outlines the principles of ecologically based pest management and illustrates the strategies used by farmers around the world to address insect problems by: increasing on-farm diversity above and below ground; encouraging beneficial insects to attack their worst pests; enhancing plants' natural defenses against pests and managing soil to minimize crop pests.

"Well written and illustrated, *Manage Insects on Your Farm* provides both a framework for understanding ecologically based pest management as well as many of the useful

details to help minimize insect pest problems,” said Fred Magdoff, University of Vermont soil scientist and Northeast regional coordinator of CSREES’s Sustainable Agriculture Research and Education (SARE) program.



Examples of successful pest management strategies featured throughout the book demonstrate real-life examples of how to address insect problems and develop a more complex and diverse on-farm ecosystem. Readers will learn how to minimize insect damage with wise soil management and identify beneficial insects to put these “good bugs” to work.

Manage Insects on Your Farm was published by the Sustainable Agriculture Network (SAN) for the Sustainable Agriculture Research and Education (SARE) program. SARE is a program of CSREES and works with producers, researchers and educators to promote farming systems that are profitable,

environmentally sound and good for communities. SAN operates under a cooperative agreement between CSREES and the University of Vermont and the University of Maryland to develop and disseminate information about sustainable agriculture. For more information about SARE grant opportunities and other SAN resources, visit www.sare.org. Download a free complete copy of *Manage Insects on Your Farm* at www.sare.org/publications/insect.htm.





CSREES PLANT SCIENCES STAFF DIRECTORY

For more information about our programs, consult our Web site or the appropriate individual listed below:

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Auburn, Jill	Sustainable Agriculture	720-5384	jauburn
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Jones, Preston	Agronomy, Forage Crops	401-1990	jpjones
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Lichens-Park, Ann	Plant Pathology, Biology of Plant Microbe Assn., Microbial Gene Sequencing	401-6466	apark
Lin, Liang-Shiou	Plant Genetic Mechanisms, Plant Growth & Development	401-5042	Llin
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Nowierski, Bob	Entomology, Bio-based IPM, RAMP, Invasive Species, Applied Ecology	401-4900	rnowerski
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Thro, Ann Marie	Plant Breeding, Plant Genetics, Genomics, Biotechnology	401-6702	athro
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